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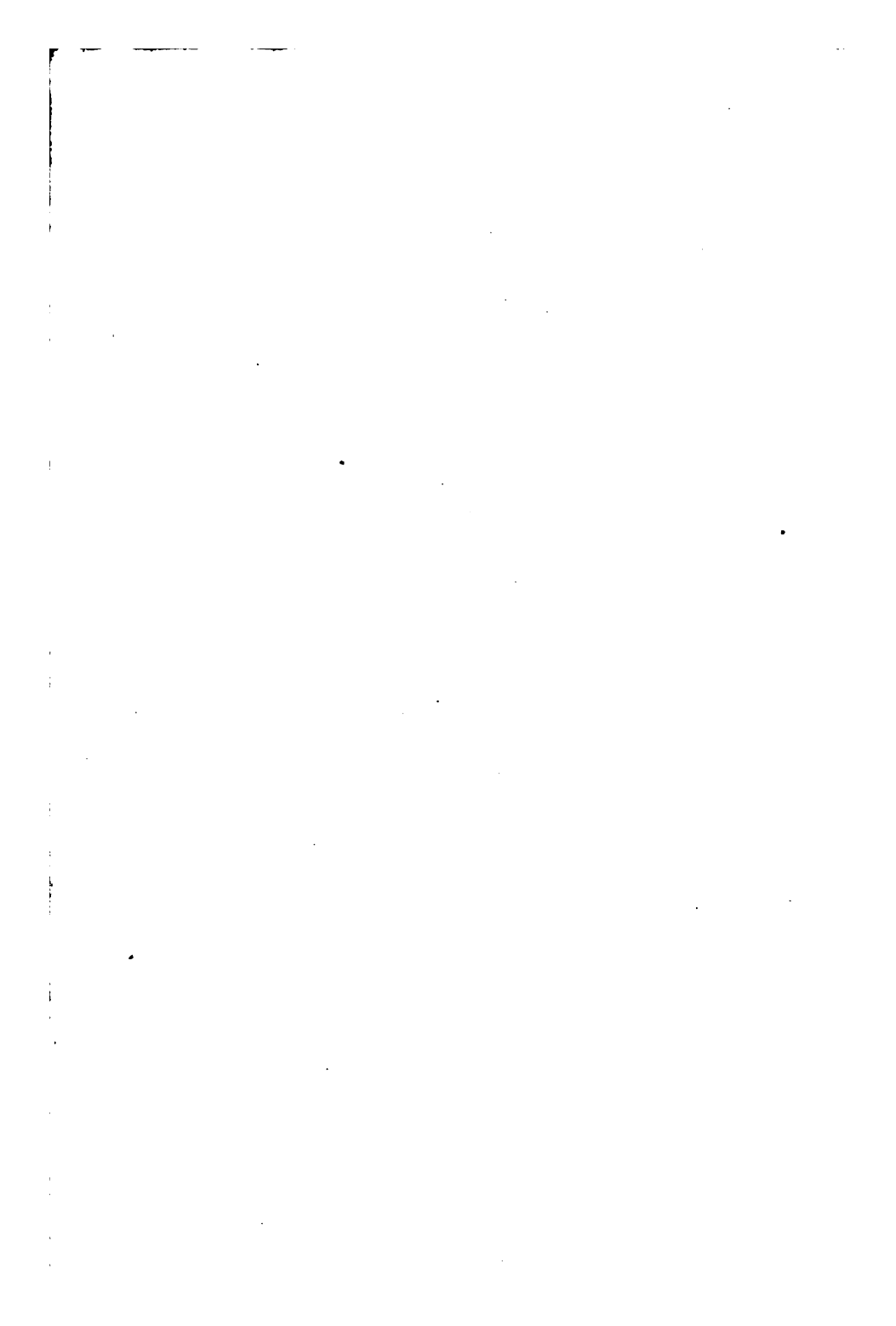
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ACCOUNT
OF A
MINERALOGICAL EXCURSION
TO THE
County of Donegal.

BY
SIR CHARLES LEWIS GIESECKE.

DUBLIN:
R. GRAISBERRY,
PRINTER TO THE ROYAL DUBLIN SOCIETY.

1826.

Don. of Add. Giesecke



ACCOUNT
OF A
MINERALOGICAL EXCURSION,
&c. &c.

PURSUANT to the direction received from the Royal Dublin Society, I left Dublin the 7th June last, and proceeded by the Derry road to Lifford and Letterkenny, for the purpose of mineralogical inquiries in the County of Donegal, to which, according to the resolution of the Society, my attention was to be turned. I selected the town of Letterkenny as the most central part of the county, to which I could with the most ease get my collections carried, and from which I had the best opportunities of forwarding them to Dublin. To avoid unnecessary repetitions, I shall lay before the Society my observations, under the head of the five baronies, of which the county consists: the Society will thus have an opportunity of judging how far I had extended my exertions, and succeeded in the examination of that county.

My Report will be illustrated by a descriptive catalogue of all the mineral substances mentioned therein, consisting of 202 specimens; which are arranged in the Museum for inspection.

BARONY OF KILMACRENAN.

This barony consists of Mica slate, mostly of a thin and straight slaty texture, which is particularly the case near to the church of Letterkenny, where it is used as a building stone. It is of an ash grey and silver grey colour, sometimes mixed with greenish grey talc slate, and extends all along the banks of Lough Swilly to Castle Grove and Killygreen, the estates of Th. Brooke, Esq. who had the goodness to accompany me on one of my excursions in the neighbouring country.

In the neighbourhood of Letterkenny a trial was made upon lead ore, which occurred in ironshot mica slate in bunches. The ore is galena, partly massive, partly in cubes, and is coated by iron ochre. It was dropped again, as it did not pay the expense.

The mica slate sometimes alternates with, and is covered by green stone of very fine grains, and of a dark greenish black colour; which is particularly the case in the neighbourhood of Glenfort, where it is also strongly ironshot on its surface.

Here I saw an extensive tract of bog land on fire, which was caused by igniting heath, and had been burning for four weeks. Near Gartan I observed extensive beds of chlorite slate, with veins of quartz intimately mixed with chlorites. At Creeslagh I first observed in this direction the underlying granite, of a coarse granular texture, and in some places covered with very thin undulatingly slaty silver white mica. The granite disappears again along the road towards Ards, the hospitable and splendid mansion of Mr. Alexander Stuart, who has, with an unexampled activity and perseverance,

converted one of the most barren and uncultivated places in his country into one of the most highly cultivated spots. He and his amiable family received me with all the kindness and hospitality for which they are so generally known throughout the country, and afforded me every facility for becoming acquainted with the neighbouring places. I saw here a very fine collection of Irish quadrupeds and birds, all prepared by his youngest son, John Stuart, Esq. and arranged in glass cases in the most tasteful style. He has very kindly promised me to provide our Museum with such animals as might be wanting for our collection.

There are two roads leading from Letterkenny to Ards, the one is by Gartan, the other by Kilmacrenan; the latter, which I passed in company with Mr. Boyd, our Secretary, goes over Lough Salt, and affords on its highest point one of the most picturesque prospects. You behold beneath your feet Glenn Inn, part of Fanad, the extensive flourishing environs of Ards, Doe Castle; and this delightful panorama terminates in the distant Atlantic. A very interesting account of Lough Salt is given in the Christian Examiner.

During the time of my residence here, I made excursions to the mountain of Muckish, to Dunfanaghy, Hornhead, and Marble Hill.

Muckish consists of a very thin slaty mica slate, of granular quartz and silver white mica. At a height of about 500 feet there is an extensive bed of white quartz sand, in very minute grains, which has been exported, and very much used in the glass manufactories of Dumbarton, being considered an excellent material. Near the foot of this mountain you find an extensive bed of primitive limestone, which dips into a lake, and is washed by it. It occurs of different qualities and colours, namely, of a pearl white, greyish white, bluish grey, and ash grey colour, passing gradually into the most beautiful flesh red and rose red. Some of the marble is flesh red, with grey stripes, and pearl white, with grey stripes. Its com-

pactness differs with the colour, the pearl white and greyish white is of a very fine grain, the other colours pass into a fine granular and coarse granular texture. I found in the neighbourhood loose blocks of serpentine with pyrites, and chlorite with pyrites. The bluish grey limestone is visible in different places all along the road to Dunfanaghy. A very extensive quarry of white limestone is also opened on the estates of George Barclay, Esq. about a mile from Ballymore church; the place is known by the name of Marble Hill. It is of a rather coarse granular texture, of a white ash grey and rose red colour. It is separated or split, as it were, in flags of a very large size; the places of separation being sometimes coated with greenish grey mica, and also spotted internally greenish grey and yellowish white. It rests on mica slate, and is used partly as a building stone, partly, particularly the spotted variety, for chimney-pieces. I saw two very beautiful ones in the house of Mrs. Colhoun in Letterkenny; and Mr. Boyd, our Secretary, had the kindness to give me a very fine slab of it for our Museum.

A very extensive whin-dike, of a dark bluish black hard greenstone is visible along the road from Dunfanaghy to Ards, and intersects the micaceous clay slate.

I went in this direction to the most northern point of the county to Hornhead, the residence of William Stuart, Esq. The whole coast along the sea consists of greenstone porphyry, composed of very fine granular greenstone of a dark green colour, with imbedded prismatic crystals of flesh red and yellowish white felspar, a rock which affords a most beautiful appearance, when moistened by the water of the sea; particularly as the rock is intersected in different directions by veins of snow-white quartz. There are imbedded in these veins large lamellæ of iron glance of a steel grey colour, copper pyrites and iron pyrites, and particles of lamellar chlorites. Here is the celebrated cavern known by the name of Mac-

Swine's gun, formed by the action of the sea. From the extremity of this cave there rises a narrow perpendicular funnel, reaching to the surface of the rock, in the shape of a chimney. At half tide, particularly with a heavy northerly swell, the funnel spouts up water in the form of liquid dust resembling particles of snow, to an immense height, followed by a tremendous explosion, which may be heard at a great distance, some say twenty miles. The sea being very calm, I was not so fortunate as to hear the explosion, or witnessing the firing of Mac Swine's gun.

At Farland's point there is a very extensive dyke of greenstone.

A very fine new road leads from Fintown to Glentice. Here are very extensive quarries of primitive bluish grey limestone, partly unicoloured, partly striped. This limestone rests upon greenstone, in which there are beds of white coarse granular limestone, accompanied by common garnet. The road from this to Cloghanealy is very bad. The whole country abounds with coarse granular bluish limestone. Near Kildrum there are lead mines worked for the Royal Mining Company of Ireland with tolerably good success. The mine which I visited is about 27 fathoms deep, and its level 500 feet long. The ore (common galena) occurs in bunches and nodules in mica-slate, and is of a very good quality. I found on the old heaps fragments of white lead ore. About four miles from this place is the mountain of Arraghil or Arrighle, the highest in the county. Its base is granite, with very little mica, and is partly covered by mica slate. This granite sometimes contains particles of hornblende. At its western foot, close to Lough Dunloughy, there is an extensive bed of fine granular white limestone, of a milk white and pearl grey colour, and in very fine grains. It is traversed by different dykes of greenstone, of which I observed five close to each other, and extends from E. N. E. to W. S. W. The marble was worked by Mr.

Walker, about twelve years ago, and I found there blocks of various dimensions, which had been quarried, some of which were about six feet long and three feet thick. I consider this white marble as the best in Ireland; and it might be used with great advantage, if a road were constructed from Kildrum to this place. The present access to the spot is exceedingly bad, and can only be reached on horseback. The neighbourhood of the Lough would greatly facilitate the transport of the blocks. The marble is covered by hornblende slate, in which I found common garnet of a hyacinth-red colour, crystallized in dodekahedrons.

BARONY OF BOYLAGH AND BANNOGH.

I returned by the same road over Glentice to Guibarra river. The granite is here visible every where along the road. I met here with beds of common garnet of a dark red brown colour, strongly ironshot, massive, and in dodekahedrons, accompanied by essonite and malacolithes of a dark leek-green colour, accompanied by calcareous spar. Large tracts of greyish blue granular limestone are quarried near Glentice. Close to the river there was worked a few years ago a lead mine to a depth of ten fathoms, but without good success. The galena occurred in thin narrow veins, in coarse granular grey limestone. The shore of the Guibarra is very rocky, and the river full of sand. The tide sets up the river to a distance of eight miles, to Rutland-bridge, on the road from Fintown to the Rosses. Below that there are ferries, but carriages cannot pass. I crossed the river at the lowest ebb tide, and proceeded to Dunglo or Cloghanlea, a neat little town, and entered the Rosses. Nassau Forster, Esq. received me very kindly, at his residence of Lakbeg. This wild mountainous country, which entirely belongs to the primitive granite formation, abounds in the most romantic scenery,

well worth the attention of travellers. Mr. Forster, himself a most indefatigable landlord and agent at the Rosses for the Marquess of Cunningham, has done very much for the improvement of this place. Passing a narrow sound, you come from Lakbeg to the island of Rutland, a place on which immense sums have been expended since the year 1786, for the support of the herring fishery, and in the building of quays, a custom-house, stores, &c. but the fish has entirely left the bay, and most of the houses are destroyed or covered by flying sand.

From Rutland I went to the island of North Arran, or Arranmore, two miles west of Rutland. It consists of red coarse granular granite, with overhanging mica-slate and clay-slate. There is in a valley a bed of yellowish-white porcelain clay, mixed with minute grains of quartz and grey iron-shot common clay. Through the granite there run veins of small prismatic rock crystals.

At Croey, eight miles from Arranmore, you find extensive beds of talc slate, with imbedded, somewhat ironshot common pyrites. Common talc, asbestos, steatites, and jade occur in nests and globules. The mica slate is partly of a silver-white, partly of a pearl-white colour. The latter variety passes into talc slate. The beds of talc slate run along the coast, and are very much decomposed, being washed by the tide.

Another remarkable place for mineralogy in the Rosses is at Lough a Nure, four miles from Lackbeg. The environs of this beautifully romantic spot consist entirely of mica slate, with extensive beds of coarse granular dolomite, of a pearl-white colour. On a spot near the Lough, with a small island in its centre, you find a bed of granular limestone, with imbedded cuneiform and bacillar egeran (bacillar idocrase) of a hair-brown and yellowish-green colour, and epidote crystallised in six-sided prisms, with common garnet

of a reddish-brown colour. The whole country round is very hilly, and can only be travelled on horseback.

Traversing the barony of Boylaugh, you meet at Mount-charles with extensive stratas of yellowish stratified sandstone, which splits very easily into flakes, and is used as a building-stone. It rests upon mica-slate, which extends all over the country towards Killybegs, where it contains chlorites, and nodules of common quartz. Towards Ardra it is covered with greenstone.

BARONY OF RAPHOE.

The rocks of this barony consist of mica slate of different qualities. Its colour is mostly ash grey and greyish green, shining, and very thin slaty. It is traversed, particularly in the vicinity of Lifford, by large veins of pearl grey quartz, and flesh red felspar, passing into yellowish red. The felspar is partly massive, partly crystallized in small four-sided prisms. I observed also small particles of iron pyrites. We find in the neighbourhoyd of Raphoe extensive beds of bluish grey limestone, approaching to dolemite.

On an excursion which I made to Drumboe Castle, the residence of Sir Samuel Hayes, one of the most active resident landlords of this county, I observed the mica slate more undulatingly bent than in other parts of the country, particularly along the river.

The mica slate is here alternating with clay slate, in which there are beds of greyish black pipe-clay, which soils the fingers very strongly, and may probably contain manganese.

There are resting upon the mica slate extensive beds of

blueish grey, somewhat micaceous limestone. It is traversed by quartz of a greyish white colour, calcareous spar of a white, yellowish white, and greyish white colour, with imbedded particles and cubes of iron pyrites and massive arsenical pyrites.

In another place I saw a bed of granular, siliceous, white limestone, (dolomite) of a shining lustre. It occurs in detached or separated flags of different sizes, and is somewhat decomposed towards the surface. It rests upon mica slate, of a greenish grey colour, which I found imbedded in small prisms of greenish black hornblende. Along the river Dale I found hairbrown titanite, imbedded in greyish white quartz.

The gap of Barnesmore, a beautiful valley cutting through a chain of mountains, presents to the eye of the traveller a delightful variety of scenery. You have on both sides of the road lofty mountains, of a fine red granite, with beds of greenstone, and a good road along the river Mourne leads you to Donegal.

At Fintown, situated close to the mountain Skreag, a leadmine was formerly worked by some English miners, which appears to be very promising. The veins occur in fine granular granite, with green mica; the granite is covered with mica slate. The ore, common galena, is partly fine, partly coarse granular, massive, and in small cubes, and very much mixed with brown massive blende. Along the mountain of Skreag and Achla I observed extensive beds of pale green hornblende with iron-ochre and coarse granulated yellowish and reddish white brown spar, and in large loose blocks, grey hornstone-like quartz. A quarry of white coarse granular limestone is worked close to Fintown, and burned to lime at the neighbouring kilns. At Loughnabradan, a mile from Fintown, close on the road to Glenties, there occurs also galena, accompanied by mica slate.

BARONY OF TYRHUGH.

This country consists chiefly of granite and mica slate. In the former there is imbedded near Ballyshannon, dark brownish black tourmaline, crystallized in three, six, and nine-sided prisms, bearing a strong resemblance to that of Dalkey, near Dublin. At Donegal I observed around the bay extensive beds of green stone-like wakke; with imbedded greyish white chalcedony, in nodules and balls, known here by the name of white carnelian and globular merotype.

This kind of wakke is covered by a greyish black substance, of a rather soft nature, which has all the character of slaty clay.

Donegal is a nice little town, agreeably situated at the mouth of Donegal Bay. I had here the good fortune to meet Mr. Young, who made me acquainted with the most interesting curiosities of this place. He guided me to a granite hill, near the town, from which I had a most extensive prospect over the town and its bay. He accompanied me also to the handsome ruins of the old castle belonging to the Earl of Arran, and to a spa of a strong sulphureo-hepatic smell and taste, not inferior, and perhaps equal to that of Harrowgate. He presented me with a bottle of this water, which I have deposited in the Laboratory of the Royal Dublin Society. There are on the opposite side of the town very interesting ruins of a Franciscan monastery founded in the 14th century.

BARONY OF INNISHOWEN.

The principal rocks of this barony are mica slate of a grey colour, very often undulatingly bent; and clay slate of a

grey green and reddish brown colour. I found near Redcastle, the property of John Chambers, Esq. who received me very politely, greywacke slate with imbedded numerous white and red grains of quartz. It rests upon mica slate, which is here traversed by veins of quartz, mixed with chlorites and iron ochre, with imbedded grains of decomposed common garnet. In different places along Lough Foyle there are extensive beds of meadow iron ore, which are washed by the tide. Another curiosity attracted my attention; it was a kind of cistern made of grey syenite, in the shape of a stone coffin, six and a half feet long, two feet four inches broad, and somewhat narrower on one extremity, two feet four inches high, and three inches thick. It appeared somewhat rabbeted on its upper margin for the sake of a lid or cover. The stone of which it is formed is not from this neighbourhood. It stands about two hundred paces from the residence of Mr. Chambers, in the bed of Lough Foyle, and is under water at high tide. At present it is used as a reservoir for oysters. In crossing the barony from Quickly's Point to Carn, I passed by an old lead-mine near Glentougher, the property of Mr. Alexander; it was worked about fifty years ago, to a great extent. I found six old shafts, communicating, as I was told, with a level about five hundred feet long, from south to east. I collected there, from the immense old heaps, milk white quartz, grey hornstone, massive and rhomboidal sparry iron ore, common galena, massive and in cubes and octahedrons, massive and cubical iron pyrites, and brown blende. The veins, which appeared to be very rich, were worked in talcose whitish grey clay slate.

A road leads from Glentougher to the town of Carn, four miles, where I had the pleasure of meeting Mr. John Harvey, who took me with him to Mawlin Hall, his residence. He accompanied me on an excursion over his estates, and to Mawlinhead. We went first along Lough Swilly to Knockglass, a mountain tract of undulated grey talcose mica slate, with beds of grey micaceous and yellowish grey marly limestone. There occurs in the mica slate near Gore, a bed of

chlorit slate, intimately mixed with earthy copper green, and accompanied by copper pyrites and somewhat decomposed iron pyrites, the latter crystallized in small cubes.

On another day I went to the Glebe House of the Rev. Mr. Hamilton at Redfort, who very liberally gave me a bed in his rather contracted residence, and brought me to a limestone quarry, worked by himself to a considerable extent. The limestone occurs here in thin blocks, from six to eight feet long, and three to four broad; it is somewhat mixed with iron pyrites, and used for building stones, hearth flags, &c. The quarry is washed by the Atlantic, and the view from the top of the rock to Mawlinhead, the distant coast of Antrim, and the immense plane of the ocean, is truly majestic and delightful.

The whole coast along Mawlinhead, consists of a very fine granular granite, with very little mica.

I found the most whimsical tortuosities of clay slate on my leaving Innishowen, close to the residence of his Lordship the Bishop of Derry, who received me with his known hospitality; and who does every thing to further and to support with liberality every endeavour tending to the promotion of scientific inquiry. It is needless to mention the zeal and activity which this highly venerable Prelate shows for the success of the North-west Society, for the furtherance of agriculture, and all the branches connected with it; and there is no doubt, that in a short period, the country will feel the most blessed result from the patriotism of their resident landlords.

TOREY ISLAND.

Before I close this account, I may be permitted to add a few words respecting this most northern point of the county.

I determined to go there merely for the purpose of ascertaining its geological relations. I left Ards for this excursion, well provided by Lady Mary Stuart with a very large basket filled with provisions of every description. I was quite surprised at the quantity of eatable and drinkable articles for the short period which I had fixed for my aquatic excursion; but my friends at Ards assured me, that the tremendous sea of the Atlantic, rolling through Torey Sound, very frequently detained the boats on the island for three or four weeks. Yet I went on, and proceeded to Dunfanahy, where Captain Montgomery, R. N. very kindly assisted me in ordering one of his well manned Waterguard boats to bring me thither from Innisbofin. We left the land at one o'clock, got through some small breakers, the sea being rather boisterous, and arrived at the island at seven o'clock in the evening. The island, viewed from the main land, has the appearance of a very extensive old castle in ruins, the rocks representing its walls rising perpendicularly from the bottom of the sea. —The more you approach these rocks the more awful becomes the idea that this dreary spot is inhabited by human beings. There are two miserable villages on the two opposite ends of the island, named from the points, East-town and West-town; we made land at East-town, and I took up my residence in one of the cabins. I beheld an unparalleled scene of misery and wretchedness amongst the inhabitants, which was increased by an unexampled gale in July last, when the sea broke over the island, destroyed all their crops, and rendered their fresh water undrinkable. But I was since informed by Mr. Boyd, our Secretary, that the gentry of the county had come forward and raised a subscription in aid of these poor creatures, the number of whom, I was told, exceeded four hundred souls.

There are the ruins of two old castles on the island, one at its eastern, the other at its western end. That at the east end consist only of two large walls. I was informed that it was

built by a Danish king of the name of Barro, which led me to think that the name of the island might be of Danish or Scandinavian origin, composed from the words Tor or Thor, the name of the god of Thunders, and Ey, Island, consequently Thor-Ey, Thorisland. The Scandinavians placed their god Thor on the most boisterous places. The other ruins at the West-town are in tolerably good preservation, with a fine large round tower, said to have been built by St. Colomb.

Here is a miraculous well, to which the inhabitants attach great virtues and powers. The island consists of porphyritic syenites intersected by grey slaty quartz, which gives an appearance of stratification. On account of the masses of coarse granular granite scattered along the coast, I am induced to think that the whole mass may rest upon granite; I traced three dykes of basaltic green-stone with imbedded augite.

The length of the island from south-east to north-west is three miles, its breadth one mile. After having passed a very uncomfortable night in the cabin, I returned the following morning at six o'clock, and reached the main land at twelve o'clock.

SUMMARY AND OBSERVATIONS.

In laying this account of my mineralogical excursions through the County of Donegal before the Royal Dublin Society, I shall accompany it with a few observations on some of the substances mentioned and described.

There is no doubt that this county abounds particularly in very fine marbles, which may be converted to useful purposes, and engage the industry of the population in very retired parts of the country.

The white marble of Dunlughy, near the mountain Ar-rigle, is of an excellent quality, and its bed very extensive; I traced its presence to a distance of half a mile in the square. It is fine granular, and may be employed to the finest works of common sculpture, and I have no doubt but that there also may be raised fine blocks fit for statuary.

As to its quality; its texture and whiteness approach more to that of the Parian, than to the Carrara marble. It is very well known that perfect blocks of the Carrara marble are procured with great difficulty; and I firmly believe, that the marble of Dunlughy is free from mica, quartz grains, and other substances interfering with the chisel, which so frequently disappoint the artist who works upon the marble from Carrara. The marble of Muckish is likewise of a very good quality, rather shining, and would do exceedingly well for ornamental sculpture.

The occurrence of such mineral substances as are found only in a few countries, is particularly interesting to the mineralogist. Such are the bacillar or columnar idocrase, the malacolithe, the epidote, and the Essonite, which occur in a bed in the Rosses; the hyazinthred garnet, which I found in hornblende slate, covering the white marble of Dunlughy; and different other substances, which I have mentioned in the Descriptive Catalogue of the Minerals. The whole county abounds in granite, mica slate, and limestone; and the transitions from mica slate into clay slate are often very remarkable.

I cannot close this Report without returning my most sincere thanks to Mr. Boyd, our Secretary, who was indefatigable in furthering the views of the Society, and who accompanied me in two of my excursions, and whose amiable family generally treated me as a friend of the house. I owe it also to truth to state, that my character as Professor of the Royal Dublin Society, obtained for me, from the resident gentlemen of Donegal, a most kind and hospitable reception,

and a cooperation, without which my labours would have been more irksome and less successful.

I have collected for the Irish Cabinet very interesting specimens of minerals in this county, which I have accompanied with a Descriptive Catalogue, as in the case of Galway and Mayo; and I trust that the Society will feel the benefit of possessing, at some future day, a complete collection of Irish minerals, and that, although the greatest part of the task must necessarily devolve upon my successors, I shall always feel the liveliest satisfaction at the reflection, that to me has been entrusted the honorable distinction of having led the way.

A

DESCRIPTIVE CATALOGUE
OF THE
MINERAL SUBSTANCES
FOUND IN THE COUNTY OF DONEGAL.

BARONY OF KILMACRENAN.

- 1—2. Mica slate, somewhat undulatingly slaty, of a greenish grey colour, from Letterkenny.
- 3—4. Mica slate mixed with talc slate, from the same place. Mr. Boyd's quarry.
- 5—6. Micaceous clay slate, of a dark grey colour, with imbedded cubes of common pyrites, from Killicreen, Mr. Th. Broocke's estate.
7. Whet slate, of a greyish green colour, occurring with the former substance, from the same place.
8. Mica slate, very thin slaty, from near Russel's farm.
9. Common galena, with iron ochre, massive and in cubes, from the same place: it occurs in mica slate in bunches.

10. Fine granular green stone, forming beds in mica slate, from Glenford.
11. Mica slate ironshot and tarnished, somewhat decomposed, from the same place.
12. Bog iron ore of a dark yellowish brown colour, from the same place.
13. Common quartz with lamellar Chlorites, from Gartan.
14. Red coarse granular granite, from Lough Salt.
15. Greyish blue fine granular limestone (Dolomite), from the same place.
16. Ironshot somewhat decomposed mica slate, from Fanad, close to the road from Glenn Inn.
17. Dark greenish black Hornblende slate, from Dunally, all along the road.
18. Coarse granular red granite, from Cretalagh (near the inn).
19. Undulatingly bent silver white mica slate, from the same place.
20. Micaceous clay slate, from Ards.
21. Ironshot coarse granular quartz sand, from the same place.
22. Plumbago, in detached and rolled pieces, along the shore.
23. Undulating dark smoke grey mica slate, from the Muckish mountain.

24. Micaceous pale grey mica slate from the mountain Muckish.
25. Massive quartz occurring in nodules in mica slate from the same place.
26. Fine granular quartz sand of a yellowish white colour, from the same place.
- 27-28. Fine granular limestone (marble) of a pearl white colour, passing into pearl grey, from the marble hill near Muckish.
29. Fine granular marble, of a greyish white colour, from the same place.
30. Limestone (marble) of somewhat coarser grains, from the same place.
31. Marble of somewhat flattened shining grains, and a flesh red colour, from the same place.
32. Marble of finer grains, and a bright bluish grey colour from the same place.
33. Greenstone, with imbedded pyrites, in loose blocks, from the same place.
34. Common chlorites with common pyrites in rolled fragments, from the same place.
35. Fine granular limestone of a bluish grey colour, from Dunfanaghy.
36. Fine granular limestone (marble) of a yellowish white and greyish white colour, from the marble hill near Ballymore church, Mr. Barclay's estate.
37. Coarse granular limestone (marble) of a rose red colour, from the same place.

38. Coarse granular limestone (marble) of a flesh red colour, from Mr. Barclay's estate.
39. Greenstone porphyry of a dark leek green colour, with imbedded prismatic crystals of reddish white felspar, from Hornhead.
40. Iron glance in lamellæ, imbedded in greyish white quartz which forms veins in the greenstone porphyry, from the same place.
41. Copper pyrites in quartz, from the same place.
42. Lamellar chlorites in quartz, from the same place.
43. Common pyrites, occurring in a whindyke, from the same place.
44. Greenstone, occurring in a dyke, from Farland point.
45. Mica slate of an ash grey colour, from Kildrum, Claghanealy.
46. Coarse granular galena, from Kildrum leadmines (occurring in bunches).
47. A finer variety from the same place.
48. Lead earth with iron ochre, from the same place.
49. Common pyrites, occurs in bunches at the same place.
50. Common quartz, along with mica slate, from the same place.
51. Greenstone porphyry, forming an extensive tract along the Arrigle mountains.
52. Marble of a pearl white colour and fine grains, from Dunlughy, at the Arrigle mountain.

- 53-54. Varieties of white marble, with a tinge of pearl grey, from the same place.
55. Marble of pale rose red colour and fine granular structure, from the same place.
56. Ironshot greenish black horn blende, which covers the white marble, from the same place, (somewhat magnetic).
57. Common garnet, of a hyazinthred colour, somewhat decomposed and ironshot, forming narrow veins in the horn blende slate, from the same place.
58. Granular limestone (calcareous spar,) somewhat figured on its surface with quartz, forming narrow veins in the hornblende slate, from the same place.
59. Mica slate of coarse slaty texture, of an ash grey colour, from the Arrigle mountain.
60. Ash grey fine granular granite, from the foot of the mountain.
61. Common quartz (in large loose blocks), probably occurring in the mica slate.
62. Common quartz, with intermixed particles of lamellar chlorites, found in boulders along the Lough of Dunlughy.

BARONY OF BOYLAGH AND BANNOGH.

63. *Malacolithe*, crystallized in four-sided prisms of a leek green colour with greyish white granular limestone, from Glentice. It forms a bed resting upon mica slate.

64. *Garnet* of a cherry red colour in imperfect dodekahedrons, imbedded in greyish white granular limestone, from the same place.
65. Bluish grey siliciferous fine granular limestone, from the same place.
66. Coarse granular red granite, from Guybarra river.
67. Massive *essonite* (cinnamon stone) of a yellowish brown colour, mixed with quartz, from the bar of Trajennagh, Guybarra river.
68. Red coarse granular granite, from Lackbeg, in the Rosses.
69. Coarse granular ash grey conglomerat, from Rutland, in the Rosses.
70. Pearl grey mica slate, a kind of white stone, from the same place.
71. Ash grey mica slate, with imbedded small prisms of brown rutil, from the Island of Arranmore. It rests upon coarse granular granite.
72. Pearl grey porcelain clay, forming small beds in a valley.
73. Yellowish white porcelain clay, from the same place.
74. Pearl white mica slate, somewhat decomposed, from Croey.
75. Pearl grey whitestone traversing the mica slate, with dendritically disseminated manganese, from the same place.

76. Earthy steatites of pearl white colour, from the same place.
77. Earthy talc slate, from the same place.
78. Jade of greenish grey colour, from the same place.
79. Earthy talc of yellowish white colour, from the same place.
80. Pearl grey granular quartz in beds in the granite, near Maghery.
81. Coarse granular red granite, from Lough a Nore in the Rosses.
82. Garnet (*Essonite*) in greenish white fine granular limestone, from the same place.
83. Ditto, in greyish white limestone, from the same place.
84. *Bacillar (columnar) Idocrase*, of yellowish brown and greenish yellow colour, with particles of leek green epidote, from the same place.
85. Coarse granular greyish white dolomite, (occurs in extensive beds), from the same place.

3. BARONY OF RAPHOE.

86. Mica slate, passing into grey wakke slate, from Lifford.
87. Fleshred felspar, in small four sided prisms, forming veins in mica slate, from Lifford.
88. Clay slate, with black clay, from Drumboe.
89. Ironshot pipe clay, from the same place.

- 90 Ash grey marly clay, from Drumboe.
91. Mica slate, with hornblende, from the river Dale.
92. Blue siliceiferous limestone, from Lurgy.
93. Cellular common quartz, from the same place:
94. Leek green calcareous spar, from the same place.
95. Titanite in quartz and chlorites, from the river Dale.
96. Fine granular dolomite (in beds), from Lurgy.
97. Coarse granular red granite, from Barnesmore.
98. Ferriferous greenstone (resting upon granite), from the same place.
99. Iron pyrites in cubes, imbedded in greenstone, from the same place.
100. Grey hornstonelike quartz, from Fintown.
101. Granular pearl grey limestone (occurs in extensive beds), from the same place.
102. Common pyrites, from Fintown.
103. Massive brown blende, from the lead mine near Fintown.
104. Massive iron pyrites, from the same place.
105. Pale green hornblende, with iron ochre and common quartz, from the same place.
106. Massive fine granular galena, from the same place.
107. Massive coarse granular galena, from the same place.

108. Thin slaty mica slate, from the lead mine near Fintown.
109. White granular, somewhat decomposed limestone, from the same place.
110. Coarse granular granite, from the mountain Skreag.
111. Chlorites, with quartz, from the same place.
112. Thin slaty hornblende slate, from the same place.
113. Fleshred magnesian limestone (occurs in beds towards the mountain Achla).
114. Fine granular granite, from Loughnabradan.
115. Greenstone porphyry, from the same place.
- 116—117. Fine granular decomposed granite, from the same place.
118. Greenish grey mica slate, from the same place.
119. Quartz with intermixed mica, from the same place.
120. Common serpentinelike greenstone, from the same place.
121. Galena in scattered fragments, from the mine which was worked here formerly.

4. BARONY OF TYRHUGH.

122. Decomposed greyish black slaty wakke, from Donegal Bay.
123. Greyish white chalcedony in loose detached pieces, from the same place.

124. Silty yellowish grey sandstone, from Mount Charles.
125. Tourmaline of dark brownish black colour, in six-sided prisms; imbedded in coarse granular some what ironshot granite, from Ballyshannon.
- 126, 127. Chlorites with quartz, from Killibegs.
- 128, 129. Figured common quartz, from Killibegs.
130. Greyish blue fine granular limestone, from Killibegs.
131. Compact greenstone, from Andra.
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5. BARONY OF INNISHOWEN.

132. Silver grey mica slate, from Quickly Point.
133. Undulated mica slate, from Red Castle.
134. Grey wakke slate, from Red Castle.
135. Reddish white quartz, from Red Castle.
136. Chlorite with quartz, forming veins in mica slate, from Red Castle.
137. Bog iron-ochre, from Red Castle.
138. Whitish grey mica slate, from Glentougher.
139. Massive isabella yellow sparry iron ore with quartz, from Glentougher.
140. The same substance, massive and in rhomboids, from Glentougher.
141. Common galena, from Glentougher.

- 142 The same substance in cubes, with granular limestone, from Glentougher.
143. Ditto in dodekahedrons, from Glentougher.
- 144—147. Compounds of galena, brownblende sparry iron ore and quartz, which form the veins, from Glentougher.
148. Galena, with blende, from Glentougher.
149. Galena, with common pyrites (both disseminated in the rock,) from Glentougher.
150. Ditto, another variety, from Glentougher.
151. Common quartz, from Glentougher.
- 152—153. Mica slate, from Glentougher.
154. Grey granular limestone, from Knockglass, near Mawlin Hall.
155. Yellow marly limestone, from Knockglass.
156. Bent mica slate, from Knockglass.
157. Chlorite slate, with copper pyrites, iron pyrites and copper green, forming a bed near Gore.
158. Grey siliciferous limestone, from Mawlin Hall on the road to Culdref.
159. Porphyritic syenite, with much quartz, from Mawlin Head.
160. Greenstone porphyry, from Mawlin Head.
161. Coloured quartz pebbles, from a place near Mawlin Well.
162. Grey limestone, with imbedded cubical common pyrites, from Redford.

- 163. Undulated ash grey clay slate, from Fahan.
 - 164. Common quartz, with chlorites, from Fahan
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INNISBOFIN AND TOREY ISLAND.

- 165. Striped grey mica slate, from Innisbofin.
- 166—167. Green stone porphyry, from Innisbofin.
- 168. Quartz, with Chlorites traversing the mica slate, from Innisbofin.
- 169. Reddish brown common quartz, from Innisbofin.
- 170. Coarse granular granite (in loose blocks) along the shore, from Torey island.
- 171. Porphyritic syenite, from Torey Island.
- 172. Augite in prisms, imbedded in greenstone, from Torey Island.
- 173. Greyish black mica slate, from Torey Island.
- 174. Coloured quartz pebbles, all along the coast, from Torey Island.
- 175. Whitestone, from Torey island.

LIST OF SOME SHELLS
FOUND ON DIFFERENT PLACES.

- 176. *Balanus Balanoides.*
- 177. *Lepas anatifera.*
- 178. *Mya truncata*, from Red Castle.
- 179. *Mya pictorum.*
- 180. *Mya nitens*, from Innisbofin.
- 181. *Mya arenaria*, from do.
- 182. *Solen ensis*, from Red Castle.
- 183. *Solen siliqua*, from Red Castle.
- 184. *Tellina Sabula*, from Innisbofin.
- 185. *Tellina crassa*, from do.
- 186. *Cardium edule.*
- 187. *Cardium discors.*
- 188. *Cardium echinatum.*
- 189. *Venus decussata.*
- 190. *Venus exoleta.*

191. *Arca nucleus*.
192. *Ostrea sinuosa*.
193. *Ostrea edulis*.
194. *Anomia ephippium*.
195. *Mytilus edulis*.
196. *Mytilus pellucidus*.
197. *Bulla lignaria*, from the Rosses.
198. *Buccinum undatum*, from the Rosses.
199. *Strombus pes pelicani*, from the Rosses.
200. *Murex antiquus*, from Innisbofin.
201. *Trochus magus*, from Innisbofin.
202. *Turbo littoreus* (very large).
203. *Helix hortensis*.
204. *Helix caerulea*, from the Rosses.
205. *Patella vulgata*.
206. *Patella caerulea*.

THE END.

